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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/589,189	08/11/2006	Katsuhiko Ikeda	294888US0PCT	6071
22850 7590 03/26/2010 OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER VANATTA, AMY B				
ART UNIT 3765		PAPER NUMBER		
NOTIFICATION DATE 03/26/2010		DELIVERY MODE ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/589,189

Applicant(s)

IKEDA ET AL.

Examiner

Amy B. Vanatta

Art Unit

3765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 December 2009.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
4a) Of the above claim(s) 1-15 and 26-30 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 16-23 is/are rejected.
7) ☒ Claim(s) 24 and 25 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 11 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 081106, 111306, 112807, 092109
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group III, claims 16-25, in the reply filed on 12/4/09 is acknowledged. The traversal is on the ground(s) that the restriction requirement does not meet the burden necessary according to MPEP 1893.03(d). This is not found persuasive because, in the requirement for restriction set forth in the action mailed on 11/05/2009, the examiner specifically set forth the reasons for the restriction, including an explanation of why each group lacks unity with each other group specifically describing special technical features in each group which are lacking in the other groups (paragraphs 1-7 of restriction requirement). Applicant argues that unity is not lacking, however applicant fails to specifically identify the special technical feature which is allegedly present in all groups. The examiner contends that the groups do not share a special technical feature.

The requirement is still deemed proper and is therefore made FINAL.

Claim Objections

2. Claims 24 and 25 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, these claims have not been further treated on the merits.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 16, 17, 19, 20/19, and 21/19 are rejected under 35 U.S.C. 102(b) as being anticipated by Yoshimura et al (US 6,485,592).

Yoshimura et al disclose an apparatus comprising an intermingling device 21 comprising a yarn channel having a flat rectangular section (see Figs. 7-8) capable of passing a plurality of small tows (see fiber bundle 10a) as claimed. A plurality of air jet holes 22 are disposed within a predetermined interval along the long side direction of the flat rectangle (see Figs. 7-9), and the holes 22 open into the yarn channel as claimed (see Figs. 7-9 and col. 12, lines 42-58). Yoshimura discloses an apparatus comprising multiple such intermingling devices (see 65A and 65B in Fig. 12 and nozzles 65 in Fig. 13), a first one of which forms the claimed first intermingling device of claim 19, and a second one of which forms the claimed second intermingling device of the claim 19. Both of these intermingling devices have a yarn channel having a flat rectangular section and air holes as in claim 19 (see Figs. 7-9, Figs. 12-13, and col. 19, lines 19-27).

Regarding claim 17 and claim 20/19 (claim 20 as dependent upon claim 19), the nozzle bottom 21b comprises a groove as in claims 17 and 20. See Fig. 7, showing a

rectangular shaped groove in the upper portion of the nozzle bottom 21b, with fiber bundle 11a positioned in the groove. The groove extends along the lengthwise direction of the yarn channel and opens into the yarn channel at a position where the plurality of small tows (11a, 10a) are adjacent each other; see Fig. 7. The air jet holes 22 open only into the groove (see Figs. 7-8) as in claim 21 (i.e. claim 21 as dependent upon claim 20, as dependent upon claim 19).

5. Claims 16-21 are rejected under 35 U.S.C. 102(a) as being anticipated by JP 2004100132.

Regarding claim 16, JP 2004100132 discloses an apparatus comprising an intermingling device 25 comprising a yarn channel having a flat rectangular section (see Fig. 5(A)) capable of passing a plurality of small tows 4 as claimed. A plurality of air jet holes (27b, 28b) are disposed within a predetermined interval along the long side direction of the flat rectangle (see Fig. 5 and English language Abstract, as provided by applicant in IDS filed 11/28/07). The holes (27b, 28b) open into the yarn channel as claimed (see Fig. 5). Also see the embodiment of Fig. 4, which also meets claim 16. In Fig. 4, the apparatus comprises intermingling device 10 comprising a yarn channel having a flat rectangular section (see Fig. 4(B)) capable of passing a plurality of small tows 4 as claimed. A plurality of air jet holes (12b, 13b) are disposed within a predetermined interval along the long side direction of the flat rectangle (see Fig. 4 and English language Abstract). The holes (12b, 13b) open into the yarn channel as claimed (see Fig. 4).

Regarding claim 17, the device 10 in Fig. 4 comprises a groove which extends along the lengthwise direction of the yarn channel; see Fig. 4, showing a rectangular shaped groove in the upper portion of the nozzle bottom 13, with fiber 4 positioned in the groove. The groove extends along the lengthwise direction of the yarn channel and opens into the yarn channel at a position where the plurality of small tows (4) are adjacent each other; see Fig. 4.

Regarding claims 18 and 19, Figs. 8 and 9 disclose an apparatus comprising multiple such intermingling devices.

Regarding claim 18, see, for example, Fig. 9, which shows a first intermingling device (15, 25, or 30) and a second intermingling device 10. The second intermingling device 10 is shown more clearly in Fig. 4. The second intermingling device 10 comprises a yarn channel having a flat rectangular section (see Fig. 4(B)) capable of passing a plurality of small tows 4 as claimed. A plurality of air jet holes (12b, 13b) are disposed within a predetermined interval along the long side direction of the flat rectangle (see Figs. 4B and 4C, and English language Abstract). The holes (12b, 13b) open into the yarn channel as claimed (see Fig. 4). The first intermingling device 30 is shown in Fig. 6. The first intermingling device 30 comprises a yarn channel having a circular section (see one of the two circular sections shown in Fig. 6) capable of passing a small tow 4 and that comprises one or more air jet holes (32b, 33b) for jetting air into the yarn channel.

Regarding claim 19, also see Fig. 9, showing a second intermingling device 10 as claimed, and a first intermingling device 25. See Fig. 5, showing first intermingling

device 25 comprising a yarn channel having a flat rectangular section (see Fig. 5A) capable of passing a small tow 4 and that comprises one or more air jet holes (27b, 28b) for jetting air into the yarn channel.

Regarding claim 20, the nozzle bottom 13 of the second intermingling device 10 comprises a groove as claimed. See Fig. 4, showing the device 10 as comprising a groove which extends along the lengthwise direction of the yarn channel; that is, see Fig. 4B showing a rectangular shaped groove in the upper portion of the nozzle bottom 13, with fiber 4 positioned in the groove. The groove extends along the lengthwise direction of the yarn channel and opens into the yarn channel at a position where the plurality of small tows (4) are adjacent each other (see Fig. 4). The air jet holes open only into the groove (see Figs. 4B and 4C) as in claim 21.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshimura et al (US 6,485,592).

Yoshimura et al disclose an apparatus as claimed, comprising an intermingling device 21 comprising a yarn channel having a flat rectangular section (see Figs. 7-8) capable of passing a plurality of small tows (see fiber bundle 10a) as claimed. A

plurality of air jet holes 22 are disposed within a predetermined interval along the long side direction of the flat rectangle and open into the yarn channel as claimed (see Figs. 7-9 and col. 12, lines 42-58).

Regarding claim 22, Yoshimura does not disclose the diameter of the holes. It is within the ordinary skill in the art however to determine the optimal diameter for the holes through routine experimentation, based upon the air pressure, the spacing of the holes, the size of the fibers to be treated, and similar considerations. Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the holes as having a diameter within the range of 0.3 mm - 1.2 mm, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable range involves only routine skill in the art. *In re Aller*, 105 USPQ 233. As to lines 2-6 of claim 22, the recitations pertaining to the ratio nD/L is drawn to the properties of the tow (e.g. fineness of the tow and number of tows) and does not further limit the structure of the claimed apparatus.

Regarding claim 23, the air jet holes 22 of Yoshimura are disposed with an even pitch, as claimed (see Figs. 7-9) . The measurement of the pitch is not disclosed by Yoshimura, however it is within the ordinary skill in the art however to determine the optimal pitch for the holes through routine experimentation. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the holes as disposed with a pitch within the range of 0.8 mm - 1.6 mm, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable range involves only routine skill in the art. *In re*

Aller, 105 USPQ 233. Yoshimura also does not disclose the length of the yarn channel, as also recited in claim 23, however it would have been obvious to one having ordinary skill in the art at the time the invention was made to design the yarn channel to have a length of 10 - 40 mm, since, as noted above, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable range involves only routine skill in the art. Thus, to design the holes of Yoshimura to have the claimed pitch and diameter and to design the yarn channel to have the claimed length is within the ordinary skill in the art.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amy B. Vanatta whose telephone number is 571-272-4995. The examiner can normally be reached on Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Welch can be reached on 571-272-4996. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Amy B Vanatta/
Primary Examiner
Art Unit 3765